



CLAIMS

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What is claimed is:

1	1.	An apparatus	for testing	equipment	located in a	local	environment	by
2	presenting a d	letectable indica	tor gas therei	n, said appai	ratus comprisi	ng:		

a container portion;

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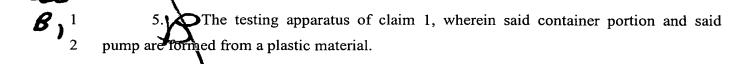
a pump operable to draw air into said container and in contact with said chemical

a chemical substance stored in said container portion;

substance to generate a detectable indicator gas, wherein said pump is integrally formed as one piece with said container portion; and

an outlet to said container for directing said indicator gas into the local environment.

- 2. The testing apparatus of claim 1, wherein said pump is a manually squeezable bulb.
- 3. The testing apparatus of claim 1, wherein said pump is selected from the group of manually operable pumps consisting of: a manually squeezable bulb, a bellows-driven pump, a syringe, and combinations thereof.
- The testing apparatus of claim 1, wherein said pump is joined seamlessly with 1 4. said container portion.



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- 1 6. The testing apparatus of claim 5, wherein said plastic material is low density 2 polyethylene.
- 7. The testing apparatus of claim 1, wherein said container portion is formed from a first material and said pump is formed from a second material distinct from said first material.
- 1 8. The testing apparatus of claim 1, wherein said container portion and said 2 pump are formed from a laminate of at least a first material layer and a second material layer 3 distinct from said first material layer.
 - 9. The testing apparatus of claim 1, wherein said container portion and said pump form a substantially permanent molded structure.
 - 10. The testing apparatus of claim 1, wherein said chemical substance is reactive with the container environment, upon operation of the pump, to generate said indicator gas.
 - 11. The testing apparatus of claim 1, wherein said chemical substance is selected such that said chemical substance and air drawn into said container portion generate a scented indicator gas upon contact.
- 1 12. The testing apparatus of claim 1, wherein said chemical substance is reactive 2 with air to produce an irritant gas.

- 1 13. The testing apparatus of claim 12, wherein said chemical substance is liquid 2 SnCl₄ and said indicator gas is an acid vapor fume.
- 1 14. The testing apparatus of claim 1, wherein said chemical substance is reactive 2 with the container environment, upon operation of the pump, to generate a visually detectable 3 indicator gas.
 - 15. The testing apparatus of claim 1, wherein said pump has a hole to allow finger release of pressure
- 1 16. The testing apparatus of claim 1, further comprising an exterior layer of 2 laminate that seals the container.





- 1 17. A method of manufacturing an apparatus for testing equipment in a local environment by presenting a detectable indicator gas therein, said method comprising the steps of:
- 4 providing a flexible material;

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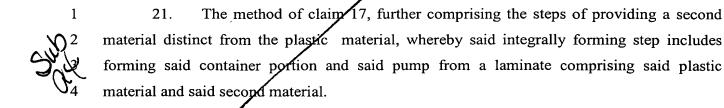
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- 5 0 integrally forming, as one piece, a container portion and a squeeze bulb portion using 6 the flexible material; and
 - storing a chemical substance in the container portion such that upon operation of the bulb to draw air into the container portion, a detectable indicator gas is generated for presentation into the local environment.
 - 18. The method of claim 17, wherein the flexible material is plastic.
 - 19. The method of claim 17, further comprising the step of sealing a breakable end tip of the container tube portion located opposite the squeeze bulb.
 - 20. The method of claim 17, wherein the step of storing includes storing a chemical that, when contacted by air drawn into the container portion generates a visually detectable indicator gas.





	1	22. A method of testing equipment in a local environment by presenting a
	2	detectable indicator gas therein, said method comprising the steps of:
	3	storing a chemical substance, reactive with air to produce an indicator gas, in a
	4	container formed substantially from a polymeric material;
	₩ ⁵	providing a polymeric squeeze bulb device in operative communication with the
5	1/18/ 1/18/	container and formed integrally, as one piece, therewith;
	U ₇	breaking a portion of the container tube to provide an outlet;
	8	operating the squeeze bulb to draw air past the chemical substance to produce a
	. 9	human detectable indicator gas;
	10	directing the indicator gas outward of the container and into the local environment
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hine or sine sum tenit sun out our	12	detecting the indicator to determine the operability of the equipment in the local
<u>I</u>	13	environment.
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M	1	23. The method of claim 22, wherein the indicator gas is a visually observable
	2	gas, said detecting step including visually observing the behavior of the indicator gas in the
	3	local environment.
م.	$\int 1$	24. The method of claim 23, wherein said observing step includes visually
ص م		observing the flow of the indicator gas in the local environment.
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25. The method of claim 22, wherein the chemical substance is liquid SnCl₄ or H₂SO₄ and said step of operating the squeeze bulb generates a chemical reaction producing an irritant indicator gas.

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26. The method of claim 22, wherein the indicator gas is indicator gas having a pre-selected spert, said observing step including detecting the scent of the indicator gas to determine the aperability of the equipment.

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1	27. A testing method of indicating air flow, said method comprising the steps of:					
2	storing a chemical substance, reactive with air to produce an indicator gas, in a sealed					
3	container tube formed substantially from a polymeric material;					
4	providing a polymeric squeeze bulb device in operative communication with the					
5	container tube and integrally formed seamlessly therewith;					
6	breaking a portion of the container tube to provide an indicator gas exit;					
7.	operating the squeeze bulb to draw air past the chemical substance to generate a					
8	reaction producing a visually observable indicator gas;					
9	directing the indicator gas outward of the container into the vicinity of the desired air-					
10	flow testing area; and					
11	visually observing the indicator gas in the air-flow testing area.					





- 28. An apparatus for fit testing a respiratory protection devices using a detectable indicator gas placed in the vicinity of the respiratory protection device, said apparatus comprising:
- 4 a container portion;

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- 5 a chemical substance stored in said container portion; and
- a squeeze bulb integrally formed as one-piece with said container portion, said squeeze bulb being operable to draw air into the container portion to generate a reaction between said chemical substance and the air, and to produce a detectable indicator gas.
- 1 29. The apparatus of claim 28, wherein said squeeze bulb and said container 2 portion are formed from a polymeric material.
- 1 30. The apparatus of claim 28, wherein said chemical substance is liquid SnCl₄ 2 reactive with air to produce an irritant vapor fume.
- 1 31. The apparatus of claim 28, wherein said container portion and said squeeze bulb form a molded seamless one-piece structure.

